

Phenomena of Jupiter's Satellites.

Day of Obs.	Satellite.	Phenomena.	Mean Solar Time.			Observer.
			h	m	s	
1869.						
Oct. 5	I.	Eclipse, disappearance	12	44	55.9	H. C.
21	III.	Eclipse, disappearance	8	50	45.6	C.
	III.	Eclipse, reappearance	10	32	43.9	C.
	III. (a)	Occult. disappearance, bisection	10	55	10.2	C.
	I.	Eclipse, disappearance	11	2	59.0	C.
Nov. 15	III.	Transit, ingress, first contact	10	13	16.0	J. C.
	III.	„ „ bisection	10	21	44.6	J. C.
	III.	Transit, egress, bisection	11	51	29.8	J. C.
	III.	„ „ last contact	11	57	58.7	J. C.
19	II.	Eclipse, reappearance	13	17	37.2	J. C.
Dec. 14	II.	Eclipse, reappearance	10	22	31.7	E.
15	I.	Eclipse, reappearance	10	3	21.1	D.
1870.						
Jan. 30	I. (b)	Eclipse, reappearance	10	37	24.5	S.
Feb. 27	III.	Eclipse, disappearance	9	23	30.0	S.
Mar. 13	II. (c)	Eclipse, reappearance	6	52	17.7	J. C.
Apr. 4	III. (d)	Eclipse, reappearance	7	18	26.3	E.

(a) Owing to the path of the satellite cutting the disc of the planet at a very small chord, and the occultation being little more than a graze, it was impossible to estimate with any accuracy the time of occultation.

(b) A haze prevalent; the time noted probably somewhat late.

(c) The sky rather bright from daylight.

(d) Very faint; the time noted is that at which the satellite was first seen; it could not have been visible more than a few seconds previously.

The initials S., D., E., C., J. C., and H. C. are those of Mr. Stone, Mr. Dunkin, Mr. Ellis, Mr. Criswick, Mr. Carpenter, and Mr. H. Carpenter.

Occultation of Saturn by the Moon, Tuesday, April 19, 1870.  
By Capt. W. Noble.

As this was my first view of *Saturn* this year I occupied myself, from 14<sup>h</sup> 40<sup>m</sup> L.M.T., in scrutinising the physical features of the planet before the occultation. I employed a power of 255 on my 4.2-inch Equatoreal, the same with which I subsequently observed the occultation itself.

Notwithstanding *Saturn's* small altitude he was well and sharply defined, Ball's division being visible over the North Pole. The shadow of the ball was of course to the west of it on the rings. The crape ring C was seen in the ansæ very distinctly. *Saturn* appeared of a richly greenish yellow when compared with the brilliant white light of the Moon.

*The Occultation.*

The first contact of the outer edge of ring A with the Moon's bright limb took place at  $16^h 47^m 55^s$  L.S.T. =  $14^h 55^m 55^s.6$  L.M.T. and that of the inner edge of ring B at  $16^h 48^m 8^s.6$  L.S.T. =  $14^h 56^m 9^s.2$  L.M.T. The preceding limb of the planet touched that of the Moon at  $16^h 48^m 19^s$  L.S.T. =  $14^h 56^m 19^s.6$  L.M.T. The globe of *Saturn* was dichotomised (as nearly as I could estimate) at  $16^h 48^m 33^s$  L.S.T. =  $14^h 56^m 33^s.5$  L.M.T. His following limb disappeared at  $16^h 49^m 1^s$  L.S.T. =  $14^h 57^m 1^s.4$  L.M.T. The inner edge of ring B was occulted at  $16^h 49^m 13^s$  L.S.T. =  $14^h 57^m 13^s.4$  L.M.T., and the last perceptible trace of the ring vanished at  $16^h 49^m 25^s$  L.S.T. =  $14^h 57^m 26^s.4$  L.M.T. Although very pale the planet was perfectly distinct, and passed behind the Moon's limb without wave, shake, or distortion.

At the reappearance of *Saturn* the first visible trace of the edge of the preceding ansa was caught sight of about  $17^h 57^m 19^s$  L.S.T. =  $16^h 5^m 8^s.3$  L.M.T., and at  $17^h 58^m 1^s$  L.S.T. =  $16^h 5^m 50^s.1$  L.M.T. the planet was *just* clear of the Moon's limb.

The emersion was very striking, from the exceeding sharpness of *Saturn*; the most delicate detail being perceptible, even in contact with the lunar limb. The crape ring C was seen most perfectly where the dark limb of the Moon crossed it. I never was more impressed with the absolute absence of a lunar atmosphere of any appreciable density than I was on this occasion.

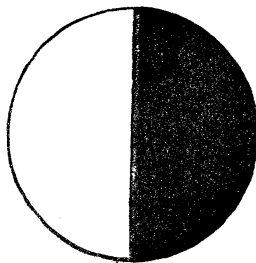
Forest Lodge, Maresfield, Sussex,  
May 13, 1870.

*Occultation of Saturn.* By C. G. Talmage, Esq.

The occultation of *Saturn* was well seen here: at sunset the sky was quite clear, and remained so to sunrise. *Saturn* was visible to the naked eye to within three minutes and a-half of the time of disappearance.

When I first looked at *Saturn*, at about  $13^h$ , no striking difference of colour from the Moon was visible, but by  $14^h$  the difference was quite perceptible, and at  $14^h 45^m$  it was most marked, the planet appearing of a yellow tint.

I had no difficulty whatever in observing both the disappearance and reappearance of *Titan*. To prevent the glare of the Moon I covered the eyepiece half over with silver foil, so that the eye was greatly relieved. The field was, therefore, of the following shape:—



The local mean times are as follows:—